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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/500,069

06/25/2004

Kwang-Soo Choi

1728.03

9148

29338 7590 06/19/2007  
PARK LAW FIRM  
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EXAMINER

YU, GINA C

ART UNIT

PAPER NUMBER

1617

MAIL DATE

DELIVERY MODE

06/19/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/500,069	Applicant(s) CHOI ET AL.	
	Examiner Gina C. Yu	Art Unit 1617	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,4 and 7-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,4 and 7-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
- 1: ☒ Certified copies of the priority documents have been received.
- 2: ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- 3: ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 9, 2007 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 2, 4, 7-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 2 recites the limitation "the silver nanoparticles" and "the fertilizer ingredients". There is insufficient antecedent basis for these limitations in the claim.

The remaining claims are rejected as depending on the indefinite base claim.

### ***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**Claims 2, 4, 7, 8, 10, and 11 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Aubay et al. (US 6905814).**

Claim 2 is directed to a liquid composition comprising titanium dioxide nanoparticles having a particle size ranging from 3-200 nm. The phrase "for promoting plant growth" is a preamble which denotes intended future use or purpose of the claimed subject matter. See MPEP § 2111.02. Similarly, the phrases in lines 5-8, "in order to prevent rapid precipitation of the titanium dioxide nanoparticles in the aqueous solution" and "necessary for plant growth" denote the purpose of the compound added to the composition. The preambles here do not define the structure of the composition, and thus no patentable weight is given to these phrases.

Aubay et al. teach film-forming titanium dioxide dispersions for cleaning and disinfecting surfaces comprising TiO<sub>2</sub> nanoparticles which are dispersed in water along with pH regulating acids, alkali metal hydroxides, and surfactants. See col. 2, lines 36-47. Alkali metal meets the adjuvants of instant claims 8 and 10. The concentration of TiO<sub>2</sub> ranges from 0.01% (or 100ppm) to 15 %. In the examples in col. 7-8, dispersions comprising anatase TiO<sub>2</sub> in the form of 40 nm particles are disclosed. In particular, example 6 discloses a aqueous dispersion comprising cationic polymer, nanoparticles of titanium dioxide, and NaOH. See instant claim 10.

In claim 11, the limitation "in which the aqueous solution is diluted with water" denotes product by process claim. Regardless of whether a separate dilution process is applied to make the composition, the claimed composition reads on the prior art comprising 100 ppm of TiO<sub>2</sub>. Also in claim 11, "when applied to the foliage of crops" denotes intended use of the composition. Whether the composition is actually applied to the foliage of crops does not affect the concentration of the prior art composition.

***Allowable Subject Matter***

Claim 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments with respect to claims 2, 4, 7-11 have been considered but are unpersuasive in part.

Applicants explanation of the present invention is noted, but examiner respectfully points out that the present invention is directed to a composition of matters, not the theory or the method of using the composition. The Aubrey reference still reads on the combination of the ingredients of the prior art.


Applicants' arguments against the obviousness rejection made in view of Glenn (US 6235685) are persuasive and the rejection is withdrawn.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gina C. Yu whose telephone number is 571-272-8605. The examiner can normally be reached on Monday through Friday, from 8:00AM until 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan can be reached on 571-272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1617

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Gina Chi-Eun Yu  
Patent Examiner